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ABSTRACT

This study analyzed data gathered in a Canada Land Inventory project in British Columbia; the purpose was to measure the degree of communication between farmers and the agricultural extension service by analyzing the nature and extent of contacts, and the relationship of the contacts to socioeconomic characteristics. The farmers tended to be an older group with a median education of eight years, beef cattle, field crops, and dairy produce their main products; the majority of the farms were small-scale enterprises; and half the respondents were employed in off-farm jobs on a part-time basis. They reported few personal contacts with the District Agriculturist; but they used impersonal contacts to a greater extent and the types of contacts reached different people. A higher socioeconomic status of the farm family as well as higher status as a farmer were associated with more extension contacts. It was concluded that the wide variations in the extent of contact was not explained solely by socioeconomic differences. An extension agent may influence the nature and extent of contacts by the emphasis he places on particular methods. (EB)

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FARMER CONTACTS WITH DISTRICT AGRICULTURISTS IN THREE AREAS IN BRITISH COLUMBIA

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RURAL SOCIOLOGY MONOGRAPHS

#1 Adult Education and the Adoption of Innovations by Orchardists in the Okanagan Valley of British Columbia. By Coolie Verner and Frank W. Millerd, 1966.

#2 The Adoption or Rejection of Innovations by Dairy Farm Operators in the Lower Fraser Valley. By Coolie Verner and Peter M. Gubbels. Ottawa: Agricultural Economics Research Council of Canada, June, 1967. Publication #11.

#3 Adoption and Rejection of Innovations by Strawberry Growers in the Lower Fraser Valley. By E. Patrick Alleyne and Coolie Verner, 1969.

#4 Interpersonal Communication and the Adoption of Innovations. By E. Patrick Alleyne and Coolie Verner, 1969.

#5 Farmer Contacts With District Agriculturists in Three Areas in British Columbia. By Isaac A. Akinbode and M.J. Dorling, 1969.

FOREWORD

Although agriculture is no longer as important in the total economy of British Columbia as it was at one time, it is still a crucial source of income for a large segment of the rural population. In too many cases, this rural farm population exists at a sub-marginal level that might be altered by changes in farming practices. But each farmer is an entrepreneur who depends solely upon his own judgement in managing his enterprise and often his judgement is impaired by inadequate knowledge. The chief source of information on agricultural matters is the local District Agriculturist, consequently, the contacts between the farmer and the agricultural agent are crucial not only for the development of the agricultural industry but also for the survival of those depending on agriculture. The study reported here analyzes the quantity and quality of the contacts between farmers and the District Agriculturist. It considers the socio-economic characteristics of farmers which may influence their contacts thereby identifying the kinds of farmers who do or do not seek information. Through this analysis, there will be clues that can help the Agricultural Extension Service evaluate its present work with farmers as well as plan for the future.

This study uses data collected in a Canada Land Inventory project which is conducting a socio-economic survey of rural areas of British Columbia. The area survey reports provide descriptions of the rural population but do not necessarily analyze the data to any particular end. Through the instrument of special studies of the sort reported here, detailed analyses of certain aspects of the data are presented. Thus, not only does the project describe the rural population of British Columbia, but it also supplies data that will enhance understanding of rural life.

We are indebted to Dr. Gary Dickinson for preparing this for publication.

Coolie Verner
Professor of Adult Education
Project Director

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CHAPTER ONE

INTRODUCTION

Agriculture today is experiencing an accelerated rate of change as a result of new technology, but agricultural innovations exert little influence on agricultural productivity unless they are disseminated to farmers who then use them. Since farm people have little direct contact with agricultural scientists[1] agricultural extension services have been developed to serve as a link between the laboratory and the farm, therefore, the nature of the relationship between the extension agent and the farm operator is crucial to the diffusion and adoption of agricultural innovations.

Most of the previous studies of extension contact have been done with farmers in the United States. A few studies in British Columbia have made brief references to that subject.[2] Verner and Millerd[3] and Verner and Gubbels[4]

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[1] E.M. Rogers and H.R. Capener, The County Extension Agent and His Constituents, Wooster: Ohio Agricultural Experiment Station, Research Bulletin 858, June, 1960, p. 4.

[2] See Survey Reports No. 1 to 9.

[3] Coolie Verner and Frank W. Millerd, Adult Education and the Adoption of Innovations, Rural Sociological Monograph #1, Vancouver: Department of Agricultural Economics, University of British Columbia, 1966, pp. 43-47.

[4] Coolie Verner and Peter M. Gubbels, The Adoption or Rejection of Innovations by Dairy Farm Operators in the Lower Fraser Valley. Publication No. 11, Ottawa: Agricultural Economic Research Council of Canada, 1967, pp. 53-54.

reported the contacts between farmers and agricultural extension agents in relation to the adoption of innovations. There is still a need, however, to describe and analyze in greater detail extension contacts in the Canadian rural environment to determine the extent to which the farm population is being served by the agencies established to disseminate agricultural information.

The purpose of this study is to measure the degree of communication between farmers and the agricultural extension service in British Columbia by analyzing the nature and extent of contacts, as well as the relationship of such contacts to the socio-economic characteristics of farm operators.

BACKGROUND

The task faced by an extension agent in reaching his clientele is not an easy one. As an adult educator he attempts to influence the behaviour of many people in various situations which are subject to continual change as a result of economic and social developments. Farm operators have diverse interests and vary greatly in education, training, age, cultural background, level of living, and other characteristics which influence their response to educational stimuli. The extension agent in British Columbia also is engaged in regulatory work and this may sometimes conflict with his role as an adult educator.[5]

Ideally, an agricultural extension service should have either equal contact with all members of its constituency, or else more contact with those who have the greatest need for educational assistance. Rogers and Capener[6] noted that the people making the most use of extension services are actually those segments of the rural population which have the least need for educational assistance; and Hurd[7] stated that agricultural extension has for the most part failed to reach the

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[5] J.S. Allin, "The Role of Agricultural Extension in the Education of Rural Adults, Journal of Education of the Faculty of Education of the University of British Columbia, 10:36-47 (April, 1964).

[6] Ibid., p. 5.

[7] Lorne Hurd, "What Farmers Expect of Extension", Proceedings of the Canadian Society of Rural Extension, Sixth Annual Meeting and Convention, November, 1965, p. 10.

people who most need help. Some attribute this differential contact to the voluntary nature of the educational service provided by extension,[8] implying that it can only involve those who desire and seek help. Others have associated the phenomenon with a high clientele-agent ratio.[9] Job[10] noted that because of the heterogeneous nature of the clientele served and the limited resources available for extension, it was difficult for the service to give the type of attention needed in all cases, consequently, extension agents had to choose those farmers to whom they devoted most of their attention.

Previous studies have found that the socio-economic status of the farm operator has influenced contacts with extension agents. Wilkening[11] reported that farmers of higher status tended to use the formally organized sources of information, while those of lower status used sources which were incidental to their every day social contacts. Thus, the latter group were likely to obtain information from neighbours, relatives, dealers, and other persons with whom they had personal contact. Farmers with higher socio-economic status, on the other hand, were more likely to use extension agencies and farm magazines as sources of information. Wilkening suggests that the association between status and information sources could be explained by social and psychological variables related to socio-economic status. For example, those having higher status have the means as well as the desire for contacts with the formalized sources of information whereas those of lower status have neither the means nor the desire for such contacts.

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[8] Ibid.

[9] Province of British Columbia, Department of Agriculture, Victoria, Agricultural Outlook Conference: 1966, Report of Proceedings, pp. 184-185. See also: Meredith C. Wilson, How and to What Extent is the Extension Service Reaching Low-Income Families, Extension Service Circular 375, Washington: United States Department of Agriculture, December, 1941, p. 13.

[10] Claude H. Job, "A Study of the Roles of Selected Agricultural Extension Agents in British Columbia," Unpublished M.S.A. thesis, University of British Columbia, 1965, p. 115.

[11] E.A. Wilkening, "Sources of Information for Improved Farm Practices," Rural Sociology, 15:19-30 (1950).

Wilson[12] reported that farmers who owned their land were reached more often than were tenants, and that those with larger farms were contacted more often than those with smaller enterprises. In several studies, higher extension contact has been noted for farmers located on better roads, who had resided longer in the same community, who farmed better land, and who had more social participation.[13] Parish[14] reported that beef producers with a non-rural background or those who had spent some time in non-rural occupations had the highest extension contact scores.

THE STUDY

The Sample

The data reported in this study[15] were collected in three widely separated rural areas in British Columbia in connection with an ARDA Socio-Economic research project.[16] Interviews were conducted with all household heads resident on a random sample of privately owned or leased land plots in the

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[12] Wilson, op. cit., p. 12.

[13] Rogers and Capener, op. cit., pp. 14-26. W.L. Slocum, O.L. Brough, and M.A. Straus, Extension Contacts, Selected Characteristics, Practices and Attitudes of Washington Farm Families, Washington State Institute of Agricultural Sciences, Bulletin 584, April, 1958, pp. 27-28. L. Scantland, C.V. Svinth, and M.J. Taves, A Square Look at Extension Work in Spokane County, Washington State Institute of Agricultural Sciences, Bulletin 463, June, 1952, pp. 54-59.

[14] Ross Parish, "Extension Services and the Grazier on the Southwest Slope," Review of Marketing and Agricultural Economics, New South Wales, Division of Marketing and Agricultural Economics, Department of Agriculture, 24: 223-235, (March, 1956).

[15] For a more detailed description of the study, see: Isaac A. Akinbode, "The Relationships between the Socio-Economic Characteristics of Farmers in British Columbia and Their Contacts with District Agriculturists," Unpublished M.S.A. thesis, University of British Columbia, 1969.

[16] The three areas included Peace River, Vanderhoof West, and Kamloops. A separate survey report has been prepared for each area.

summer of 1967.[17] A total of 640 household heads were interviewed and 265 (41.4 per cent) were classified as farmers since their sales of agricultural products exceeded $250 in 1966. The number of farmers interviewed in the three survey areas ranged from 65 in Vanderhoof West to 113 in Peace River and 87 in Kamloops.

Not all of the farmers interviewed were included in the analysis of data as two criteria were established which eliminated some respondents. Nine had ceased to farm between the end of 1966 and the time that the interviews were conducted, so they were excluded. Also excluded from the correlation and regression analyses were an additional 34 respondents who did not supply all of the information requested, but they were included in the frequency distribution analysis.[18]

Data Analysis

Several statistical procedures were used in the analysis of data. Chi square values and contingency coefficients were used to test for statistically significant differences in the distributions by extension contact and selected socio-economic characteristics of farmers. Spearman rank correlation coefficients were used to examine the general associations among the variables studied. Furthermore, because specification of the relationship between extension contact and each socio-economic characteristic should take into account the effects of the other characteristics, a multiple regression analysis[19] was conducted to overcome this complication as it eliminated those socio-economic characteristics which did not contribute significantly to the variance in extension contacts.

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[17] The sampling procedure used is described in detail in: Coolie Verner, Planning and Conducting a Survey: A Case Study, Ottawa: Rural Development Branch, Department of Forestry and Rural Development, 1967.

[18] Inferences made on the basis of analyses assume that random sampling conditions pertained.

[19] J.H.R. Dempster, A.E. Gagne, and R. Hogan, Trip: Triangular Regression Package, University of British Columbia Computing Centre, April, 1965.

THE FARMERS

The characteristics of the farmers in the sample were not unlike those of farmers in British Columbia generally as has been reported in considerable detail elsewhere,[20] consequently, only a summary is provided here.

Some 84 per cent of the respondents were married and the median age category was 45 to 54 years with 12 per cent under age 35. Two-thirds of the farmers were born in Canada but only 24 per cent were born in British Columbia, although 55 per cent had lived in their present area for more than twenty years and 41 per cent had been farming for more than twenty years. The median years of school completed was eight and only 14 per cent reported high school completion. One-eighth of the farmers had taken a general adult education course in the past three years and 46 per cent said that they wanted further education or training principally in agricultural subjects. Farmers travelled a median distance of 11 to 15 miles for certain types of goods and services, with 4 per cent reporting more than 40 miles. The majority of farmers were not actively involved in community organizations as 72 per cent received a score of ten or less on a social participation scale.

The farms were generally small-scale operations as measured by gross and net farm income data. The median received from the sale of agricultural products was in the $3,000 to $3,999 class with 46 per cent reporting less than $3,000 and 36 per cent more than $6,000. The median net farm income was $2,000 to $2,999 with 56 per cent earning less than $3,000 and 14 per cent above $6,000. Forty-nine per cent of the respondents did no off-farm work to supplement the income received from agriculture.

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[20] Coolie Verner, Gary Dickinson and Bruce Kloosterman, A Socio-Economic Survey of the Peace River Area. Vancouver: Faculty of Education, University of British Columbia, 1968. (Survey Report No. 4). Coolie Verner, Gary Dickinson, and Darrell V. Anderson, A Socio-Economic Survey of the Vanderhoof West Area. Vancouver: Faculty of Education, University of British Columbia, 1968. (Survey Report No. 7). Coolie Verner and Gary Dickinson, A Socio-Economic Survey of the Kamloops Area. Vancouver: Faculty of Education, University of British Columbia, 1969. (Survey Report No. 8).

The principal agricultural products reported most frequently by respondents were beef cattle (40 per cent), field crops other than fruit and vegetables (35 per cent), and dairy produce (14 per cent). Of those who reported livestock products, only 29 per cent maintained more than fifty animal units emphasizing the small-scale nature of farming. Four-fifths of the respondents owned all of their land and only one rented entirely. The median total farm size was 320 to 639 acres with 100 to 159 acres of improved land. Some 16 per cent of the holdings had an investment value of more than $100,000 and the median investment value was in the $40,000 to $49,999 class.

CHAPTER TWO

CONTACTS WITH DISTRICT AGRICULTURISTS

Several methods are used by District Agriculturists to disseminate information about farm practices to farmers in British Columbia[1] including visits and telephone calls to the office of the District Agriculturist by farmers, farm visits by the District Agriculturist, agricultural meetings and field days, mailed announcements or bulletins, farm radio and television programs, and newspaper articles.

Extension contact methods may be classified into personal and impersonal types. Personal contacts are those entailing direct communication between a farmer and an extension agent, while impersonal contacts include reading or use of the mass media.[2] Studies by Rogers and Havens[3] and by Verner and Millerd[4] used this two-fold classification system which was adopted in this study.

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[1] Nine District Agriculturists or Associate District Agriculturists serve various sections of the three areas studied here.

[2] Rogers and Capener, op. cit., p. 10.

[3] E.M. Rogers and A.E. Havens, Extension Contact of Ohio Farm Housewives, Wooster: Ohio Agricultural Experiment Station Bulletin 890, November, 1961.

[4] Verner and Millerd, op. cit.

TOTAL CONTACTS

An extension contact scale developed by Rogers and Capener[5] was used to measure the number of contacts between farmers and an extension agent. As shown in Table 1, 1.5 per cent of the farmers reported no contact of any kind with the District Agriculturist during the previous year, while 5.9 per cent used all contact methods.[6] Respondents reported an average of 3.71 contact methods which is greater than the 2.53 average noted by Verner and Gubbels among dairy farm operators in the Fraser Valley.[7]

TABLE 1

PERCENTAGE DISTRIBUTION OF RESPONDENTS
BY EXTENSION CONTACT SCORE

Score	No.	%
LOW		
0	4	1.5
1	9	3.5
2	28	10.9
3	88	34.4
MEDIUM		
4	59	23.1
HIGH		
5	38	14.8
6	15	5.9
7	15	5.9
Total	256	100.0

[5] Rogers and Capener, op. cit., pp. 13-14.

[6] Some 53 per cent of the respondents were able to give the name of the District Agriculturist when asked to do so.

[7] Verner and Gubbels, op. cit., p. 21.

Three levels were established by classifying the farmers who had a contact score of 0 to 3 as low, 4 as medium, and 5 to 7 as high. The low contact category contained 50.3 per cent of the respondents with an average of 2.52 kinds of contact, the medium group included 23.1 per cent of the respondents, and the average contact score was 5.51 for the 26.6 per cent who were in the high contact category.

TYPE AND EXTENT OF CONTACTS

The type and extent of contacts with extension agents has a variable influence on the decisions made by farmers with respect to the day-to-day operation of their farms. Personal contacts allowing for direct discussion between agent and farmer help to establish rapport so that farmers may develop greater confidence in the agent. Impersonal contacts, on the other hand, are abstract and more effective in reinforcing existing attitudes than in facilitating change.[8] In this study the respondents used the impersonal more than the personal types of contact. The average score for personal contacts was 1.05 compared with 2.66 for impersonal types and this latter category accounted for 72 per cent of the total average contact score.

Among the impersonal contact methods, farm newspaper articles had the highest frequency of use with 93 per cent of the respondents reporting such contact. (Table 2). In descending order of frequency were farm radio and television programs with 91 per cent listening to or watching such programs, and 81 per cent reading circular letters and mailed announcements or bulletins. With personal contact methods, 35 per cent reported visiting the District Agriculturist in his office, 34 per cent reported attendance at agricultural meetings and field-days, 17 per cent made telephone calls to the District Agriculturist, and 16 per cent reported farm visits by him.

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[8] Joseph T. Klapper, "The Social Effects of Mass Communication", in Wilbur Schramm, (ed.), The Science of Human Communication, New York: Basic Books, 1963, pp. 65-76.

TABLE 2

PERCENTAGE DISTRIBUTION OF RESPONDENTS

BY USE OF CONTACT METHODS

Method	No. (N = 256 = 100%)	%
Personal		
Visits to D. A. Office	90	35
Telephone Calls to D. A.	44	17
Farm Visits by D. A.	42	16
Attendance at Meetings and Field Days	87	34
Impersonal		
Mail from D. A.	206	81
Farm Radio and T. V.	233	91
Farm Newspaper Articles	239	93
Average of All Contacts	134.4	52.4

Personal Contacts

The percentage of farmers who reported no personal contact with the District Agriculturist in 1966 ranged from 65 to 84 per cent. (Table 3). Twenty-four per cent of them visited the District Agriculturist in his office once or twice while 4 per cent made five or more visits, and 65 per cent made none. Eighty-three per cent reported no telephone calls to the District Agriculturist, 11 per cent made one or two calls, 3 per cent called three or four times, and another 3 per cent reported making such calls five or more times in 1966. Only one respondent was visited by the District Agriculturist five or more times while 84 per cent reported no visits, 14 per cent reported being visited once or twice, and 2 per cent were visited three or four times. Two-thirds of the farmers attended no meetings or field days, 23 per cent reported attending one or two events, and 11 per cent attended three or more.

TABLE 3

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY NUMBER OF PERSONAL CONTACTS WITH DISTRICT AGRICULTURIST

Method	Number of Contacts									
	0		1 or 2		3 or 4		5 or more		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Visits to D. A. Office	166	65.0	62	24.0	18	7.0	10	4.0	256	100.0
Telephone Calls to D. A.	212	83.0	29	11.0	7	3.0	8	3.0	256	100.0
Farm Visits by D. A.	214	84.0	36	14.0	5	2.0	1	1.0	256	100.0
Attendance at Meetings and Field Days	169	66.0	59	23.0	20	8.0	8	3.0	256	100.0
Average	190.3	74.5	46.5	18.0	12.5	5.0	6.8	2.5	256	100.0

Of the six intercorrelations possible among the personal contact methods five were statistically significant at the .01 level[9] and the positive values ranged from R = .273 to R = .431. This suggests that the use of personal contacts followed a pattern in that farmers who had more of one kind of contact were likely to have more of the other kinds as well. On the other hand, farmers who used a particular method infrequently were also less likely to use the other personal contact methods.

Impersonal Contacts

The numbers of farmers reporting use of the three impersonal contact methods ranged from 81 to 93 per cent. Forty-five per cent reported reading mail from the District Agriculturist "often", 26 per cent "sometimes", 10 per cent "rarely", and 19 per cent reported that they never read mail from the District Agriculturist. (Table 4). Fifty per cent of the respondents listened to farm radio and television programs "often", 35 per cent "sometimes", 6 per cent "rarely", and 9 per cent did not listen to such programs at all. Newspaper articles were used most frequently. Sixty-six per cent of the respondents reported that they read such articles "often", 22 per cent "sometimes", 5 per cent "rarely", and only 7 per cent reported no use of this medium.

There were significant positive intercorrelations ranging from R = .321 to R = .488 among the three impersonal contact methods indicating that farmers who used one impersonal contact frequently tended also to use the others.

Of the twelve intercorrelations between personal and impersonal contacts, only two coefficients were statistically significant and both were positive. Hence, these two contact methods appeared to be used independently. Thus, farmers who used personal contacts more frequently did not generally show a similar tendency to use impersonal contacts. Conversely, the extensive use of

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[9] The Spearman rank correlation coefficients are presented in Appendix I.

TABLE 4

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY FREQUENCY OF USE OF IMPERSONAL CONTACTS WITH DISTRICT AGRICULTURIST IN 1966

Method	Frequency									
	Never		Rarely		Sometimes		Often		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mail from D.A.	50	19.0	25	10.0	76	26.0	116	45.0	256	100.0
Radio and T.V. Programs	23	9.0	15	6.0	90	35.0	128	50.0	256	100.0
Farm Newspaper Articles	17	7.0	14	5.0	56	22.0	169	66.0	256	100.0
Average	30	11.6	18	7.0	70.3	27.6	137.6	53.6	256	100.0

impersonal contacts did not lead to increased use of personal contacts. This pattern of contact is not usually found in diffusion research where the frequent use of one type of contact tends to be indicative of the frequent use of other contacts.[10]

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[10] Verner and Gubbels, op. cit., p. 22.

CHAPTER THREE

SOCIO-ECONOMIC CHARACTERISTICS AND CONTACTS

Since there are measurable differences in the number and types of contacts between farmers and extension agents, it is useful to attempt to identify those factors which may contribute to such variance in contact. Four socio-economic characteristics of farmers were found to have statistically significant correlation coefficients with respect to other characteristics so these were selected for detailed analysis by contact. These characteristics include years of school completed, participation in adult education, number of improved acres, and gross farm income. (Appendix I).

CONTACT LEVELS AND TYPES

Respondents were divided into three categories that identify the intensity of contacts with the extension agent as noted earlier. The low contact level category included 129 (50.3 per cent) of the respondents with 59 (23.1 per cent) in the medium contact level and 68 (26.6 per cent) classified at the high contact level.

Total Contacts

Each of the four socio-economic characteristics noted above produced a statistically significant chi-square value when analyzed by total contact score. The number of farmers reporting eight or less years of school completed decreased from 78 per cent in the low contact category to 61 per cent in the medium and 53 per cent in the high contact category. In contrast, the number having twelve or more years of school completed increased with each higher level of contact beginning with 22 per cent at the low level, 39 per cent at the medium level and 47 per cent at the high contact level. The incidence of participation in general adult education also increased with an increase in the extension contact level from 6 per cent in the low level group to 8 per cent in the medium level and 25 per cent at the high contact level. (Table 5).

TABLE 5

CHI-SQUARE VALUES FOR DISTRIBUTION BY SOCIO-ECONOMIC CHARACTERISTICS AND EXTENSION CONTACT LEVELS

Socio-Economic Characteristics	Chi-square Values	p	Contingency Coefficient
Years of school completed	14.56	<.001	.23
Participation in adult education	16.01	<001	.24
Number of improved acres	52.66	<001	.41
Gross farm income	57.75	<.001	.43

Farmers who reported more acreage in improved land tended to use a greater number of contact methods than did those with less acreage. At the low contact level, 49 per cent of the farmers operated less than 100 acres of improved land while 14 per cent had more than 640 such acres. Among those in the medium contact level, comparable figures were 37 and 15 per cent. At the high contact level, only 13 per cent of the farmers had less than 100 acres of improved land while 56 per cent reported more than 640 acres.

Since the gross sales of agricultural products generally increases as acreage under cultivation increases, it is expected that gross farm income will show the same relationship to extension contact level. At the low contact level, 59 per cent of the respondents reported sales of less than $3,000 with 16 per cent reporting sales at $9,000 or more. Among the high contact group, on the other hand, 15 per cent reported a gross farm income of less than $3,000 while 68 per cent received $9,000 or more.

Personal Contacts

Three of the four socio-economic characteristics studied produced a statistically significant chi-square value when analyzed by low and high levels of personal contacts. (Table 6). The variable that was not significant was that

TABLE 6

CHI-SQUARE VALUES FOR DISTRIBUTIONS BY SOCIO-ECONOMIC CHARACTERISTICS AND PERSONAL CONTACT LEVELS

Socio-Economic Characteristics	Chi-square Values	p	Contingency Coefficient
Years of school completed	4.58	N.S.	-
Participation in adult education	9.51	<.01	.19
Number of improved acres	13.38	<.001	.22
Gross farm income	11.16	<.001	.20

of years of school completed. At the low personal contact level, 9 per cent of the farmers reported participation in adult education compared with 28 per cent in the high personal contact group. Less than 100 acres of improved land was reported by 41 per cent of the farmers classified in the low personal contact group while 20 per cent of this group reported more than 640 such acres. In the high personal contact group, 9 per cent reported less than 100 acres and 63 per cent reported 640 acres or more under cultivation. A similar tendency was

evident with respect to gross farm income, where 47 per cent of the low and 16 per cent of the high personal contact groups received less than $3,000, but 24 per cent of the low compared with 75 per cent of the high group had sales of $9,000 or more.

Impersonal Contacts

A pattern similar to that found for personal contacts was observed when the same four socio-economic characteristics were analyzed by low and high levels of impersonal contacts. (Table 7). Again, the number of years of

TABLE 7

CHI-SQUARE VALUES FOR DISTRIBUTIONS BY SOCIO-ECONOMIC CHARACTERISTICS AND IMPERSONAL CONTACT LEVELS

Socio-Economic Characteristics	Chi-square Values	p	Contingency Coefficients
Years of school completed	4.14	N.S.	-
Participation in adult education	4.07	<.05	.13
Number of improved acres	17.10	<.001	.25
Gross farm income	13.38	<.01	.22

schooling was not a differentiating characteristic, but participation in adult education was significant with 5 per cent of participants in the low as against 14 per cent in the high impersonal contact groups. In the low contact group, 52 per cent of farmers owned 99 acres or less of improved land and 61 per cent reported a gross farm income under $3,000. On the other hand, the high impersonal contact group contained 32 per cent of farmers with less than 100 acres and 37 per cent with agricultural sales less than $3,000. Only 9 per cent of the low contact group compared with 31 per cent of the high contact group had more than 640 acres of improved land, and 14 and 36 per cent respectively reported a gross farm income of $9,000 or more.

The four socio-economic variables reported appear to explain the differential rate of contact between farmers and extension agents. Farmers with larger agricultural enterprises had more contacts than did the smaller operators which appears to support Job's[1] conclusion that extension agents were somewhat selective of the farmers to whom they devoted most of their attention. In the present case, those farmers with a higher socio-economic status received more assistance as measured by extension contacts than did lower status individuals.

When the contact methods were grouped by personal and impersonal contacts, years of school completed was found not to be a significant variable in either case even though it was a significant influence when the total contact score was considered. On the other hand, participation in adult education was significant in all cases. This is consistent with the research by Verner and Millerd[2] in which adult education, but not years of school completed, was found to be significantly related to the adoption of innovations. This suggests that those farmers who participate in adult education seek information and use it more than do those who don't participate. Thus, the development of increased opportunities for farmers to participate in adult education may facilitate the dissemination of agricultural information and encourage its application on the farm.

CONTACT METHODS

In view of the significant relationships established previously between the four socio-economic variables studied and the methods classified by personal and impersonal contacts, a further analysis was made to determine which specific contact methods appeared to be related to the given socio-economic variable. This analysis is summarized in Table 8 which shows that

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[1] Job, op. cit., p. 115.

[2] Verner and Millerd, op. cit., pp. 18-19.

only the variable of number of improved acres was significantly related to all the contact methods studied. Gross farm income was related to all methods but radio and television and participation in adult education was not significantly related to mail, newspapers, or radio and television. Years of school completed showed the fewest number of significant relationships with only visits to the office and meetings and field days being significant. These data suggest that the growing emphasis on the use of mass media reported by Keesing[3] may tend to reduce the effectiveness of the extension information program.

TABLE 8

SUMMARY TABLE OF SIGNIFICANCE LEVELS OF CHI-SQUARE VALUES FOR DISTRIBUTIONS OF SOCIO-ECONOMIC CHARACTERISTICS OF FARMERS BY USE OR NON-USE OF EXTENSION CONTACT METHODS

Contact Method	Years of school completed	Participation in adult education	Number of Improved Acres	Gross Farm Income
Visits to D. A. Office	.01	.001	.001	.001
Telephone Calls	N.S.	.01	.001	.001
Farm Visits by D. A.	N.S.	.05	.05	.001
Meetings and Field Days	.01	.01	.001	.001
Mail from D. A.	N.S.	N.S.	.01	.01
Radio and T. V.	N.S.	N.S.	.01	N.S.
Newspaper Articles	N.S.	N.S.	.001	.001

Related Variables

The four socio-economic variables analyzed in detail were those which showed the clearest relationship to extension contacts and with the frequency of use of the several contact methods. Other variables showed significant correlations with some extension contact methods but while these could lack meaningful interpretation they do indicate distinctive tendencies which are of considerable practical

[3] Paul B. Keesing, "A Study of Provincial Agricultural Extension Services in Canada: 1952-1961," unpublished M.S.A. thesis, University of British Columbia, 1965.

as well as statistical significance. Among such is the significant positive correlation between number of years resident in the community and the reading of mail from the District Agriculturist (R = .192). This might indicate that the relative newcomers to an area are not known to the District Agriculturist and have not been added to the mailing list which suggests that more frequent revisions of the mailing list might produce a more general coverage of local farmers.

There were negative associations between number of miles travelled for goods and services and telephone calls to the District Agriculturist (R = -.185), and attendance at meetings and field days (R = -.253). The farmers who lived farther from the service centers ranked lower on those two contact methods than did those who were relatively close. Distance, plus the fact that some farmers did not have telephones installed, tended to restrict their accessibility to some methods of extension contact.

Those having a higher level of living made more telephone calls to the District Agriculturist (R = .300), attended more meetings and field days (R = .256), read more mail from the District Agriculturist (R = .175), and read farm newspaper articles more frequently (R = .258) than did those possessing fewer amenities of life. Thus, the general socio-economic status of the farm family as well as status of the farmer, as measured by improved acreage and gross farm income, were indicative of a greater number of contacts with extension agents.

Those farmers who were more active participants in community organizations attended more meetings and field days (R = .345) than those who were less active in such groups, but this was not unexpected as the two types of activities are similar in nature. Those reporting more social participation also made more visits to the District Agriculturist in his office (R = .208), received more farm visits from him (R = .215), and read more mailed material (R = .261). With the exception of the last coefficient, these associations indicate an overall pattern of preference among some farmers for gregarious activities involving direct contacts with people. Other farmers, however, seem to avoid face-to-face contacts of both a formal and informal nature.

There was some indication that the extension agents were working primarily with those farmers who were most amenable to change although no cause and effect relationship can be deduced from the data. There were significant positive correlations between an attitude toward change scale score[4] and the number of farm visits by the District Agriculturist (R = .229) and with attendance at meetings and field days (R = .179). With respect to attendance at meetings and field days which involve an effort on the part of the farmer, one would expect that only those farmers more amenable to change would make the required effort. The relationship of attitude toward change and farm visits is less clear but a District Agriculturist may prefer to visit those farmers who show evidence of accepting his advice. On the other hand, visits to farms may be a way of inducing a more positive acceptance of change so the failure to visit farmers with a low potential for change may, in fact, strengthen their resistance.

Three socio-economic characteristics pertaining to employment correlated significantly with attendance at meetings and field days. These included number of months worked in 1966 (R = .172), number of weeks spent at off-farm work (R = -.191), and proportion of the total family income received from agriculture (R = .219). Such coefficients indicate that respondents who concentrated more on farming attended more meetings and field days than did those who were less committed to agriculture. In addition, those reporting a higher net farm income attended more frequently (R = .191), and they received more visits from the District Agriculturist (R = .215) than those with lower net farm earnings from agriculture.

All of the extension contact methods with the exception of radio and television programs were significantly correlated with farm investment value. Thus, the farmers with more invested in farming tended to use extension contacts more than did those with less. Respondents with a greater total number of

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[4] A scalogram analysis showed a coefficient of reproducibility of .9103 and a consistency coefficient of .5400. See: Louis Guttman, "The Basis for Scalogram Analysis," in Studies in Social Psychology in World War II: Volume IV, Measurement and Prediction, New York: John Wiley and Sons, 1966, pp. 60-90.

acres made more visits to the District Agriculturist (R = .239), attended more meetings and field days (R = .179), and read more mailed material from the District Agriculturist (R = .239).

PREDICTION OF CONTACTS

Although certain socio-economic characteristics were found to have a statistically significant association with various extension contact methods, it is reasonable to assume that complex relationships exist which involve more than the variables studied. Years of school completed correlated significantly with social participation (R = .280) consequently, to analyze the effects of other variables on social participation in relation to extension contact necessitates that the variable education be controlled. Thus, as a further test of the variables found to have a significant relationship to the use of extension contact methods, those characteristics which did not contribute significantly to the variation were eliminated by using multiple regression analysis.[5] (Table 9).

In the total use of extension contacts, 33.92 per cent of the variation is explained by the four variables of years of school completed, distance travelled for goods and services, social participation, and amount of gross farm income. This leaves about 66 per cent of the variance not explained by the factors tested; consequently, other factors not examined here have influenced the decision of a farmer to make contact with the District Agriculturist.

Years of school completed, participation in adult education, attitude to change and number of improved acres account for 25.37 per cent of the variation in visits to the office of the District Agriculturist. About one-quarter (26.82 per cent) of the variation in the use of telephone contacts is accounted for by the variables of fathers' education, level of living, gross farm income and farm value. Three of these four factors are economic and, therefore, related to the cost of maintaining telephone service. This result was undoubtedly influenced by the

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[5] For the detailed steps in the analysis see: Akinbode, op. cit., pp. 13-14. See also: Dempster, Gagne, and Hogan, op. cit., pp. 5-6.

TABLE 9

PERCENTAGE OF VARIATION IN CONTACT EXPLAINED BY SOCIO-ECONOMIC CHARACTERISTICS IN REGRESSION ANALYSIS

Contact Method	Socio-economic Characteristics	Percentage of Variation Explained
Total Contacts	Years of school completed Distance travelled Social participation Gross farm income	33.92
Visits to D. A. Office	Years of school completed Participation in adult education Attitude to change Number of improved acres	25.37
Telephone Calls	Education of father Level of living Gross farm income Farm value	26.89
Farm Visits by D. A.	Participation in adult education Attitude to change Gross farm income	13.01
Meetings and Field Days	Distance travelled Social participation Gross farm income	24.86
Mail from D. A.	Age Years of school completed Years in area Social participation Attitude to change	22.98
Radio and television	Nil	Nil
Newspaper Articles	Age Level of living Attitude to change	13.15

fact that it was not possible to test this on the basis of whether or not a farmer had a telephone.

The regression analysis showed that 13.01 per cent of the variation in farm visits by the District Agriculturist was explained by the combined effect of participation in adult education, attitude to change, and gross farm income.

Since farm visits by the District Agriculturist involves more than characteristics of the farmer alone, these data do little more than offer a possible description of the kind of farmer the agent chooses to visit as noted earlier with respect to the variable attitude to change. The role of gross farm income in farm visits is further evidence supporting Job's conclusions cited previously.

About one-quarter (24.86 per cent) of the variation in attendance at agricultural meetings and field days is accounted for by distance travelled for goods and services, social participation, and gross farm income. None of these factors are startling or unexpected.

Age, years of school completed, length of residence in the area, social participation, and attitude to change explained 22.98 per cent of the variation in the reading of mail from the District Agriculturist. None of the socio-economic factors included in this study explained the variation in the use of farm radio and television to obtain information on agricultural problems. Age, level of living, and attitude to change explained 13.15 per cent of the variation in obtaining agricultural information through farm newspaper articles.

In the final analysis, there is still too little known about the factors which influence farmer contacts with the District Agriculturist. None of the socio-economic characteristics studied here explained more than 27 per cent of the variation in the use of any contact method although 34 per cent of the variance was explained by four characteristics when the total contact score was considered. In view of the fact that both the farmer and the extension agent are involved in extension contacts, it appears essential to examine both sides of the equation

simultaneously. Thus far most of the research into extension contacts has concentrated on the farmer but it is clear that this alone will not clarify the differential rates of contact encountered.

CHAPTER FOUR

SUMMARY AND CONCLUSIONS

An agricultural extension service, through its extension agents, is one of the principal sources of agricultural information available to most farmers. This study examined the extent and nature of farmer contacts with District Agriculturists and some 256 farmers were interviewed for that purpose in the Peace River, Vanderhoof West, and Kamloops areas of British Columbia.

SUMMARY

The socio-economic characteristics of the respondents were similar to those found in other areas in the province. In general, farmers tended to be an older group with a median education of eight years but many of them expressed an interest in further education or training. Beef cattle, field crops, and dairy produce accounted for the principal agricultural products of most of the respondents, but the majority of farms were small-scale enterprises as measured by such criteria as gross sales of agricultural products and number of animal units. Half of the respondents were employed in off-farm jobs on a part-time basis.

The farmers generally reported few personal contacts with the District Agriculturist, but they used impersonal contacts to a greater extent and the two types of contacts reached different people. Fifty-three per cent of the respondents knew the name of the District Agriculturist and the average total number of contacts was 3.71 during 1966, including 2.66 impersonal and 1.05 personal contacts. Only 5.9 per cent of the farmers reported using seven contact methods, while 1.5 per cent had no extension contact of any kind. Sixty-five per cent of the respondents did not visit the District Agriculturist in his office, and 66 per cent reported no attendance at agricultural meetings and field days. Some 84 per cent of the household heads were never visited by the District Agriculturist, and 83 per cent never called the District Agriculturist on the telephone. Most of the farmers (93 per cent) read farm newspaper articles and 91 per cent listened to farm radio or television broadcasts. The least frequently used of the impersonal sources of information, mail from the District Agriculturist, was read by 81 per cent of the respondents.

An extension contact score was determined by adding the number of different methods used by the farmers, and from this score three contact levels were established. The respondents at the higher total contact level were characterized by more years of school completed, more participation in adult education, greater sales of agricultural products, and a larger number of improved acres. When the contact methods were grouped into personal and impersonal types, years of school completed was not a differentiating characteristic. It appeared, then, that more extension contact methods were used by those who had higher socio-economic status in agriculture.

In examining each contact method separately, the number of improved acres farmed and gross farm income were differentiating characteristics in most cases, while years of schooling and participation in adult education became less important in distinguishing between users and non-users of various methods. These findings are a further indication that agricultural information is directed primarily toward the operators of larger farms while those who have smaller holdings and more need for assistance do not receive as much help and information.

In addition to the four socio-economic characteristics which were examined in detail, correlation coefficients were determined for a number of other factors. It appeared that relative newcomers to an area were not on the extension service mailing list, and distance tended to limit certain types of personal contact with the District Agriculturist. A higher general socio-economic status of the farm family as well as higher status as a farmer was associated with more extension contacts. Farmers who were more active participants in community organizations and those more amenable to change reported more frequent contacts with the District Agriculturist, as did those with a greater dependence on agriculture and more valuable farms. These relationships all indicate that the farmers who had the least need for educational assistance actually received the most help.

The socio-economic characteristics which were related to the use of contact methods explained from 13 to 27 per cent of the variation in the use of those methods. Participation in adult education, attitude to change, and gross farm income together accounted for 13 per cent of the variation in farm visits by the District Agriculturist, while fathers' education, level of living, gross farm income and farm value explained 27 per cent of the variation in the use of telephone calls to discuss agricultural problems. Years of school completed, distance travelled for goods and services, social participation, and gross farm income together accounted for 34 per cent of the variation in the use of all extension contact methods.

CONCLUSIONS

There are wide variations among farmers in the extent of contact with the District Agriculturist in British Columbia. This variation is not explained solely by socio-economic differences among farmers nor does the responsibility for initiating contacts rest with the farmer alone. An extension agent may influence the nature and extent of contacts by the emphasis he places on the

several contact methods available to him and in the effort that he makes to insure that he is available to all farmers.

The need for agricultural information is so great and the District Agriculturist so limited in time and resources to meet the need that he may choose contact methods that have a potential for a wider coverage of the farm population but at the same time are not necessarily the most effective means of diffusing information to all segments of the farming population. Thus, impersonal contact methods are used more extensively even though the personal contact methods have been shown to be more successful time and again. Farmers are selective of the contact method to which they will respond. Those farmers with a higher socio-economic status can make effective use of both personal and impersonal contacts but lower status farmers appear to use personal contacts more effectively. Yet, District Agriculturists tend to concentrate on those farmers with the least need through personal contacts while leaving farmers with the greatest need for personal contact access chiefly through impersonal contact methods.

The choice of the method of contact should not be left to the farmer alone as those of lower socio-economic status are less inclined to seek information and help actively and must depend upon the District Agriculturist to take the initiative. Since an agent's time is limited, he must seek ways of extending the range of his influence while at the same time preserving the maximum degree of personal contacts in order to establish relationships with less successful farmers. This can be done through the use of group educational programs designed for specific groups of farmers. Such programs would extend an agent's range of personal contacts so as to include within that orbit more of those farmers with the greater need for personal help. The effectiveness of such adult education is well established and, as indicated here, it will enhance the probability that farmers will become better able to seek their own information and methods of contact.

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APPENDIX

SPEARMAN RANK

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	1.000												
2.	-.144	1.000											
3.	-.144	.279	1.000										
4.	.021	.010	.252	1.000									
5.	-.214	.199	.184	.095	1.000								
6.	-.025	-.025	-.088	-.105	.040	1.000							
7.	-.037	-.058	-.098	-.082	-.168	-.051	1.000						
8.	.044	.308	.401	.070	.128	-.011	-.337	1.000					
9.	-.136	.280	.206	.043	.092	.126	-.042	.289	1.000				
10.	-.275	.125	.193	.204	.181	-.052	-.164	.116	.112	1.000			
11.	.424	.019	-.127	-.076	-.071	.057	-.095	.067	.074	-.189	1.000		
12.	-.151	.071	.016	-.043	.075	-.013	-.118	.056	.060	.073	-.098	1.000	
13.	.148	.104	-.042	-.083	.037	.078	-.193	.126	.176	-.194	.556	.023	1.000
14.	.174	.058	.060	-.074	.037	.110	-.202	.171	.038	-.057	.238	-.129	.330
15.	-.170	.158	.190	.231	.014	.069	-.041	.172	.121	.165	-.202	.121	-.227
16.	-.036	.017	-.096	.039	-.072	.115	.186	-.190	.243	.056	.145	.125	.171
17.	-.004	.174	-.006	.043	-.004	.199	-.077	.073	.262	-.037	.203	.118	.292
18.	-.032	.195	.154	.030	.075	.110	-.186	.297	.365	.083	.313	.150	.454
19.	-.038	.331	.233	.142	.074	.057	-.136	.351	.383	.115	.243	.116	.321
20.	-.212	-.096	.019	.119	-.028	-.083	.152	-.111	-.175	.177	-.547	-.055	-.826
21.	-.086	.285	.116	.024	.083	.089	-.147	.093	.208	-.014	.047	.073	.135
22.	-.072	.164	.131	.104	.222	.085	-.185	.300	.153	.110	-.034	.007	.102
23.	-.079	.056	.039	.121	.067	-.034	-.152	.106	.215	.229	.046	.078	.151
24.	-.139	.206	.133	.109	.097	.061	-.253	.256	.345	.179	.040	.172	.219
25.	-.007	.203	.106	.174	.081	.192	-.098	.175	.261	.155	.064	.022	.155
26.	-.003	-.019	.121	.050	.033	.056	-.072	.040	.031	.031	-.008	.097	-.018
27.	.131	.203	.125	.093	-.038	.108	-.005	.258	.109	.112	.073	-.055	.067

	1	2	3	4	5	6	7	8	9	10	11	12	13

Note: The underlined values are significant at the .01 level.

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CORRELATION COEFFICIENTS

14	15	16	17	18	19	20	21	22	23	24	25	26	27
1.000													
-.042	1.000												
-.026	.109	1.000											
.114	.193	.703	1.000										
.171	.099	.420	.573	1.000									
.185	.313	.430	.597	.708	1.000								
-.320	.347	-.191	-.315	-.490	-.340	1.000							
.099	.146	.239	.340	.232	.270	-.091	1.000						
.063	.145	.083	.175	.244	.337	-.061	.308	1.000					
.035	.215	.166	.124	.261	.297	-.083	.161	.431	1.000				
.117	.191	.179	.266	.327	.306	-.191	.327	.273	.375	1.000			
.023	.118	.239	.330	.297	.285	-.123	.245	.123	.159	.311	1.000		
.085	-.013	.011	.054	.034	.034	-.050	.144	.078	.014	.117	.325	1.000	
.023	.060	.105	.179	.173	.206	-.090	.134	.077	.012	.166	.488	.321	1.000

14	15	16	17	18	19	20	21	22	23	24	25	26	27

List of Factors:

1. Age
2. Years of school completed
3. Wife's education
4. Number of children
5. Fathers' education
6. Length of residence in area
7. Distance travelled
8. Level of living
9. Social participation
10. Attitudes to change
11. Number of years farming
12. Months worked in 1966
13. Degree of involvement in farming
14. Job satisfaction
15. Net farm income
16. Number of total acres
17. Number of improved acres
18. Approximate gross farm income
19. Farm value
20. Weeks worked off-farm
21. Visits to D. A.'s office
22. Telephone calls to D. A.
23. Farm visits by D. A.
24. Attendance at meetings/ field days
25. Mail from D. A.
26. Farm Radio/TV programs
27. Farm newspaper articles

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